INSTRUMENTS AND EXPERIMENTAL TECHNIQUES
Volume 34, Numbers 1-5, 1991
(A translation of *Pribory i Tekhnika Éksperimenta*)

Engl./Russ.

Volume 34, Number 1, Part 1, January-February, 1991

OBITUARY

Moisei Semenovich Khaikin (1921-1991) 1 5

Development of Scanning Tunneling and Atomic-Force Microscopy - V. S. Édel'man 2 24

NUCLEAR TECHNIQUES

Efficient Microtron Acceleration Mode - V. M. Aleshin and A. V. Doronin 26 43

Hodoscope Hadron Calorimeter - Yu. M. Antipov, Yu. P. Gorin, Yu. A. Gornushkin, V. S. Datsko, P. Cantoni, R. Leitner, V. Lelli, G. V. Mitsel'makher, A. A. Nozdrin, A. G. Ol'shevskii, F. Palombo, A. I. Petrukhin, G. M. Solov'eva, and P. L. Frabetti 29 45

BIS-2 Spectrometer for Detection and Study of Narrow Resonances. Staff of BIS-2 - A. N. Aleev, V. A. Aref'ev, V. P. Balandin, V. K. Birulev, T. S. Grigalashvili, B. N. Gus'kov, I. I. Evsikov, L. G. Efimov, A. I. Zinchenko, I. M. Ivanchenko, M. N. Kapishin, N. N. Karpenko, D. A. Kirillov, I. G. Kosarev, N. A. Kuz'min, M. F. Likhachev, A. L. Lyubimov, A. N. Maksimov, P. K. Man'yakov, P. V. Moisenz, A. N. Morozov, V. V. Pal'chik, A. N. Parfenov, A. Prokesz, V. V. Rybakov, V. N. Sadovnikov, V. A. Smirnov, A. S. Chvyrov, A. S. Belousov, Ya. A. Vazdik, E. G. Devitsin, M. V. Zavertyaev, V. A. Kozlov, E. I. Malinovskii, S. Yu. Potashov, S. V. Rusakov, P. A. Smirnov, Yu. V. Solov'ev, A. M. Fomenko, E. A. Chudakov, N. O. Kadagidze, V. D. Kekelidze, N. L. Lomidze, G. V. Melitauri, T. U. Menteshashvili, T. G. Pitskhelauri, G. T. Tatishvili, M. S. Chargeishvili, R. G. Shanidze, I. Veres, P. Szalal, J. Paszoni, D. T. Burilkov, I. M. Geshkov, P. T. Todorov, R. K. Trayanov, V. R. Krastev, and V. D. Cholakov 37 50

Effect of Ionization-Yield Nonlinearity on Energy Resolution of Condensed-Noble-Gas Spectrometers - I. M. Obodovskii, S. G. Pokachalov, E. B. Kostyreva, M. A. Kirsanov, and A. A. Kruglov 48 60

Helium Bubble Chamber - S. K. Abdullin, G. V. Beketov, A. V. Blinov, A. B. Borodastov, I. A. Vanyushin, A. N. Gogolev, V. M. Dobrov, S. M. Zombkovskii, S. N. Komissarov, B. S. Konovalov, Yu. V. Korolev, A. V. Orlov, Ya. M. Selektor, A. M. Stepanov, V. F. Turov, V. D. Chernetskii, I. V. Chuvilo, and V. N. Shulyachenko 53 64

Measurement of Neutron Polarization - M. I. Tsulaya, M. S. Gabeliya, and S. I. Dzhamaspishvili 58 69

Diffraction Detector of Electron Spin Polarization - Yu. P. Yashin, A. A. Lavren'tev, M. K. Alyakrinskii, and M. S. Galaktionov 62 72

Spectrometric Properties of Cylindrical Liquid-Xenon Ionization Chambers - M. A. Kirsanov, A. A. Kruglov, I. M. Obodovskii, S. G. Pokachalov, V. A. Shilov, T. Ya. Voronova, and I. G. Razinova 66 75

Charge-Coupled-Device-Based Position-Sensitive Soft-X-Ray and Alpha-Particle Detector - S. E. Vasil'ev, Yu. V. Zanevskii, A. B. Ivanov, L. P. Smykov, and G. A. Cheremukhina 70 79

Injection-Molded Polystyrene Scintillator for Hadron Calorimeter - M. G. Kadykov, V. K. Semenov, and V. I. Syzdalev 78 85

	Engl.	Russ.
Determination of Scintillation Efficiency and Photometric Characteristics of X-Ray Phosphors from Results of Emission-Power Measurements - L. P. Gal'chinetskii, K. A. Katrunov, and V. D. Ryzhikov	81	88
COMPUTER APPLICATIONS		
Multipulse System for n–γ Separation Based on Parallel Analog-to-Digital Converter - V. G. Zinov, E. Lontski, and A. I. Rudenko	84	91
64-Input Hodoscope-Coder for Registration of Single-Particle Events with Clusters - N. M. Nikityuk, P. A. Rukoyatkin, and A. L. Svetov	88	94
Q-Meter with Digital Recorder for Measurement of Nuclear Polarization - Yu. F. Kiselev, A. M. Sirunyan, and S. S. Stepanyan	93	99
Multistop Time-to-Number Converter with Interpolator Based on Parallel Analog-to-Digital Converter - V. G. Zinov and A. V. Selikov	100	105
Delay Generator - V. N. V'yukhin	104	109
Interface for Organization of Multicrate CAMAC Measuring System On-Line with Élektronika-60 Microcomputer - S. I. Sitnikov	107	112
Parallel-Output Device for Digital Data in KOP Standard - E. I. Tunik	109	114
ELECTRONICS AND RADIO ENGINEERING		
Stroboscopic Phase Tracking System - A. G. Ivanov and V. L. Loladze	112	117
Ultrawideband Module for Frequency Conversion and Modulation of Radio-Frequency Oscillations - S. V. Melikhov, A. A. Titov, V. M. Faingerts, and G. N. Yakushevich	115	120
Optimization of Parameters of Cooled n-InSb Microwave Detectors - V. B. Lazarev and V. T. Chaikovskaya	116	121

Volume 34, Number 1, Part 2, January-February, 1991

	Engl.	Russ.
ELECTRONICS AND RADIO ENGINEERING		
Digital Microwave Q-Meter - A. V. Kashlyuk	119	123
Converter of Nanosecond-Pulse Parameters - A. G. Zen'kovich, P. V. Pazhitnykh, and V. A. Chudovskii	124	127
Frequency Divider with Variable Division Factor - M. I. Demchuk, V. P. Mikhailov, and G. A. Pribytok	128	130
Hybrid Low-Noise Amplifier with Bipolar Transistors - V. M. Golovin, R. N. Krasnokutskii, L. L. Kurchaninov, V. E. Postoev, R. S. Shuvalov, and V. V. Shchepillo	130	132
High-Voltage dc Amplifier - V. I. Boikov and A. V. Smirnov	132	133
High-Speed Voltage Follower - I. I. Medvedev	134	135
Two-Channel Wideband Power Amplifier - L. P. Donskikh, A. N. D'yachko, S. V. Melikhov, and A. A. Titov	136	136
Multiphase Quasiharmonic and Relaxation Oscillators - S. E. Dvorchik and B. M. Fel'dman	138	139
High-Voltage Square-Pulse Generator with 1-nsec Rise Time - Yu. F. Bondar', A. A. Goman'ko, V. I. Krementsov, V. D. Krylov, G. P. Mkheidze, and A. A. Savin	142	142
Ultrahigh-Power Microsecond-Pulse Generator - É. S. Ermolovich, N. M. Lepekhin, and N. A. Sporykhin	144	144
Arkad'ev-Marx Generators with Improved Synchronization of Dischargers with High Electric-Strength Margins - A. I. Gerasimov and A. S. Fedotkin	147	146
Short-Pulse Rogowski Loop with Metal Core - A. I. Gerasimov	151	150
Dummy Resistive Load for Ultrahigh-Power Microsecond-Pulse Generator - É. S. Ermolovich and N. M. Lepekhin	154	153
High-Voltage Controlled Discharger with Wide Working-Voltage Range - N. K. Kapishnikov	157	155

Engl./Russ.

GENERAL TECHNIQUES

Device for Diaphragming of Cylindrical Energy Analyzer for Spectroscopy of Backscattered Low-Energy Ions - S. S. Volkov, V. T. Gutenko, and Yu. E. Dmitrevskii 160 159

Molecular-Beam Detector Based on MKh7304 Mass Spectrometer - V. M. Akimov, L. Yu. Rusin, and F. A. Tsyganov 163 162

Gas-Dynamic Molecular-Beam Source - V. M. Akimov, L. Yu. Rusin, and F. A. Tsyganov ... 166 164

Apparatus for Study of Dependence of Contact Potential Difference of Solids on Thickness of Adsorbed Layer of Molecules on Their Surface - Yu. I. Asalkhanov, K. N. Ivanov, and D. Ts. Shirapova 169 167

"Raduga-2" Source of Multielement Ion Beams of Variable Composition - A. I. Ryabchikov, N. M. Arzubov, and S. V. Dektyarev 173 171

Pulsed Operation of Magnetohydrodynamic Plasma Accelerator - Yu. V. Kubarev, A. I. Livshits, A. A. Martinson, Yu. A. Romanovskii, S. E. Rosinskii, and Yu. N. Tashaev 177 174

Discharge-Based Ion Source (with Hollow Cathode) - A. P. Semenov and B.-Sh. Ch. Batuev ... 180 177

Directional Plasma Source - V. V. Saenko, A. A. Derkach, and G. N. Veremeichenko 183 179

Pulsed Slot Plasmatron - V. P. Belosheev 186 181

Attachment to G5 Goniometer for Measurement of Phase Lags of Modes of Planar Optical Waveguide - L. M. Shteingart, M. P. Lyusikov, and V. P. Red'ko 187 182

Photometric Processing of Images Produced by Image Converters with Microchannel-Plate Amplifiers - B. A. Knyazev 191 185

Effect of Temperature on Characteristics of Avalanche Photodetectors with Resistive Layer in Photon-Counting Mode - S. S. Vetokhin, V. M. Golovin, V. B. Zalesskii, S. A. Malyshev, and S. A. Shunevich 193 186

Method for Variation of Light-Scattering Angle for Measurement of Hypersound Parameters in Liquids - A. A. Shamov and T. V. Burlachenko 196 189

PHYSICS INSTRUMENTS FOR ECOLOGY, MEDICINE, AND BIOLOGY

Compact Automated Gas Analyzer with Continuous CO_2 Laser - A. M. Brodnikovskii and M. B. Bogachev 199 192

EPR Tomography with High Space Resolution Using Inserts of Magnetically Soft Materials - A. I. Smirnov, E. N. Degtyarev, O. E. Yakimchenko, and Ya. S. Lebedev 202 195

LABORATORY TECHNIQUES

Light-Guide Magnetooptical Sensor for Study of Pulsed Magnetic Fields - A. B. Semenov, A. N. Rodionov, V. V. Kutsaenko, V. M. Vatutin, V. K. Gorchakov, and V. T. Potapov 209 201

Capacitive Sensor for Measurement of Electric Field Excited by Ionizing Radiation - V. O. Oleinik 212 203

High-Vacuum Needle Valve - É. É. Abel'masov and V. A. Kozlov 214 205

Electrocapillary Sprayer for Targets of Organic Solutions - Z. Szeglowski and Yu. S. Korotkin 215 206

Source of High-Power Square Light Pulses - M. Yu. Sharonov, V. V. Mnev, and B. K. Sevast'yanov 218 208

Use of Organic Liquid for Study of Semiconductors by Photoemf Method - V. P. Denisov and A. V. Pashuk 221 211

Automated System for Measurement of Linear Dimensions of Small Objects Using CCD Photodetector - V. A. Abazov, S. M. Rutkevich, V. V. Zolotushnikov, and Yu. L. Protsenko 223 212

Membrane Filter for Diffusion Separation and Production of Ultrahigh-Purity Hydrogen Isotopes - V. M. Bystritskii, V. G. Gur'yanov, I. A. Ionesyan, V. V. Latyshev, M. P. Malek, V. L. Nikolaev, L. A. Rivkis, and V. A. Stolupin 227 216

Source of Spectrally Pure Oxygen - B. M. Zykov and A. M. Sabel'nikov 231 219

	Engl.	Russ.
Apparatus for Express Measurements of Magnetic Susceptibility in Temperature Range of 1.4-300 K - A. P. Dodokin, D. D. Perlov, and A. A. Sorokin	233	221
Radiation Shield-Heat Remover for Device for Specimen Insertion into Low-Temperature Zone - S. T. Boldarev, R. G. Amamchyan, V. M. Mishachev, and Yu. G. Aleksandrov	236	224
COMMENTARY ON ARTICLES		
Possibility of Acoustic Measurement of the Current Density of a High-Power Ion Beam - V. S. Kovivchak	239	226
Response to Commentary of V. S. Kovivchak – "Possibility of Acoustic Measurement of the Current Density of a High-Power Ion Beam" - V. I. Boiko and I. V. Shamanin	240	227

Volume 34, Number 2, Part 1, March-April, 1991

Fieldbus Networks and Their Standardization (Review) - A. A. Kotkov	243	18
NUCLEAR TECHNIQUES		
Pulsed Proton Accelerator with Variable Current - V. I. Batkin, V. N. Getmanov, I. M. Ikryanov, and O. Ya. Savchenko	252	27
Luminescence Pickup of Proton-Beam-Current Density - E. A. Meleta, N. I. Malykh, I. K. Sidorova, T. I. Prokhorova, and O. M. Ostrogina	257	31
Synchronization of Systems of Booster Synchrotron with Field of Annular Electromagnet - V. L. Bruk, Yu. V. Korolev, and A. V. Stolyarov	259	33
1.5-MV Nanosecond Electron Accelerator with Sealed Tube - S. I. Lobov, N. G. Pavlovskaya, and S. P. Pukhov	262	35
High-Current Nanosecond Electron Accelerator with 1-kHz Pulse-Repetition Frequency - N. M. Bykov, V. N. Ivanov, S. D. Korovin, S. D. Polevin, and A. M. Roitman	266	38
Compact High-Current Nanosecond Accelerator with 1.5-MeV Electron Energy - O. A. Vashaev, V. P. Gubanov, and S. D. Korovin	269	41
Bremsstrahlung Converter with Increased Quantum Yield at <100 keV - E. E. Domanov, O. N. Morgun, and V. V. Chernyi	272	43
Diagnosis of Accelerator Electron-Beam Instabilities Using Single-Crystal Radiator - V. V. Kalashnikov, B. R. Meshcherov, and V. I. Tumanov	276	46
"Lambdameter" Detector - L. S. Vorob'ev, V. B. Gavrilov, N. A. Goryainov, Yu. G. Grishuk, P. V. Degtyarenko, Yu. V. Efremenko, B. V. Zagreev, M. V. Kosov, S. G. Kuznetsov, S. V. Kuleshov, G. A. Leksin, N. A. Pivnyuk, A. V. Smirnitskii, V. B. Fedorov, F. M. Khasanov, B. B. Shvartsman and S. M. Shuvalov	278	49
Mariya-2 Magnetic Charged-Particle Spectrometer - S. A. Voronov, A. M. Gal'per, S. V. Koldashov, V. V. Mikhailov, P. Yu. Naumov, A. V. Popov, and V. Yu. Chesnokov	290	59
Apparatus for Measurement of Spectral and Angular Distributions of Gamma Quanta at Exit from LUÉ-2000 Linear Accelerator - D. I. Adeishvili, A. P. Antipenko, S. V. Blazhevich, G. L. Bochek, A. A. Kaplii, V. I. Kulibaba, N. I. Maslov, V. D. Ovchinnik, and B. I. Shramenko	294	62
Spectrometric Detectors Based on $CdWO_4$ Crystals - L. L. Nagornaya, O. V. Zelenskaya, Yu. Ya. Vostretsov, M. E. Globus, A. E. Ovechkin, V. D. Ryzhikov, E. P. Sysoeva, V. A. Sulyga, and I. A. Tupitsyna	298	66
Aluminum Drift-Tube Modules of 3.5 × 0.5 m for Charged-Particle Coordinate Detectors - Yu. M. Antipov, V. A. Bezzubov, and D. S. Denisov	302	70
Universal Proportional Counter for Comprehensive Mössbauer Studies of Crystal Surface Layers and Interiors - A. S. Kamzin and L. A. Grigor'ev	307	74

	Engl.	Russ.
High-Temperature Diffusion Chamber - N. A. Klyachin, V. K. Lyapidevskii, and V. Yu. Maksimov	311	77
"Moidodyr" Apparatus for Electric-Spark Purification of Liquid Krypton Used in Ionization Detectors - S. N. Anisimov, A. S. Barabash, A. I. Bolozdynya, V. N. Stekhanov, and D. L. Churakov	313	79
Statistical Analysis of Errors of Measurements by Double-Crystal Neutron Spectrometer - A. V. Krasnikov, D. S. Denisov, N. O. Elyutin, S. K. Matveev, and A. O. Éidlin	317	82
Study of Contrast and Space Resolution of Scintillator Array - A. G. Volkovich, V. I. Liksonov, S. V. Smirnov, V. E. Stepanov, D. V. Filippov, L. I. Uratskoev, and A. V. Chesnokov	321	85
Optimization of Light Yield of Scintillator for Position-Sensitive Gamma Detector - A. G. Volkovich, V. I. Liksonov, D. A. Lobanovskii, S. V. Smirnov, V. E. Stepanov, A. S. Tyurin, L. I. Urutskoev, D. V. Filippov, and A. V. Chesnokov	325	88
COMPUTER APPLICATIONS		
Spectrometer Modules that Operate with Personal Computers Using Multilevel-System-Interface Protocol - S. G. Basiladze, Yu. D. Shchukin, and O. Z. Éloev	328	91
Wideband Multistop Time-to-Number Converter - E. G. Zverev and A. I. Dryannov	331	94
Data Transmission from DRON-2 X-Ray Diffractometer to Computer - V. G. Abramov, N. A. Monov, V. F. Sazonov, and E. A. Chernomorskaya	334	97
ELECTRONICS AND RADIO ENGINEERING		
Data-Acquisition Channel for Ionization Chambers - G. L. Bashindzhagyan, A. G. Voronin, V. S. Eganov, E. N. Kuznetsov, and A. A. Savin	336	99
Amplitude-to-Number Converter - A. S. Glyanenko and A. I. Grigor'ev	339	101
Wideband Sample-and-Hold Device for Analysis of High-Speed Processes - V. V. Shkarupin, V. E. Donets, and N. I. Teterina	341	103
Study of Spectral Density of Series Noise of Field-Effect Transistors - I. N. Gavrilova and V. V. Gostilo	344	106
Ultrawideband Linear Power Amplifiers - D. D. Alekseevskii, V. M. Makogon, S. V. Melikhov, A. A. Titov, and V. V. Feklin	347	109
Wideband Power Amplifier for Acoustooptical Systems - A. N. D'yachko, S. V. Melikhov, and A. A. Titov	350	111
Two-Channel Generator of High-Voltage Nanosecond Pulses - Yu. A. Mansurov and M. A. Greshnov	352	113
Shaper of High-Voltage Pulses for Microchannel Plate of Image Intensifier - N. P. Polyakov and V. A. Chikurov	355	115
Voltage-Pulse Generator with Partial Capacitor Discharging - S. N. Rukin and B. G. Slovikovskii	357	117

Volume 34, Number 2, Part 2, March-April, 1991

ELECTRONICS AND RADIO ENGINEERING		
High-Voltage Pulse Generator for Electron-Beam Pumping of Excimer Laser - V. M. Borisov, K. A. Kuryapin, E. M. Rybin, and O. B. Khristoforov	363	122
Backward-Wave-Tube Submillimeter Spectrometer-Relaxometer with Picosecond Time Resolution - É. E. Aksaev, E. M. Gershenzon, G. N. Gol'tsman, G. I. Mirskii, and A. D. Semenov	367	125
Precision Secondary High-Voltage Power Supply - S. V. Savinov, A. V. Stepanov, and I. V. Yaminskii	373	131

	Engl.	Russ.
Variable Reference-Voltage Source - O. I. Andronov, V. G. Brovchenko, and S. T. Evdokimov	375	133
GENERAL TECHNIQUES		
Reference for Energy-Scale Calibration in Mass Spectrometry of Resonance Electron Capture - V. A. Mazunov, Yu. V. Vasil'ev, and M. V. Muftakhov	378	136
Transmission in Quadrupole Mass Filter in Intermediate Stability Region - N. V. Konenkov and S. S. Silakov	380	138
Photoion-Threshold-Photoelectron Coincidence Spectrometer - A. V. Golovin and P. G. Cheremnykh	385	141
Discharge-Pumped HgBr Laser with Ultraviolet Preionization - T. A. Barinova, B. V. Kiselev, E. A. Petrukhin, and A. S. Podsosonnyi	389	145
Generator of Dense High-Current Electron Beam for Free-Electron Laser - A. V. Kozhevnikov and V. S. Pak	393	148
Compensation for Acoustic Oscillations in DKDP Crystals Used for Prolonged Generation Modes in Solid-State Lasers - V. A. Rusov and I. V. Korableva	396	151
Resonator for Lasers with Rectangular Discharge Gap - V. S. Verkhovskii, S. V. Mel'chenko, and V. F. Tarasenko	399	153
Fresnel-Zone Plate for Laser-Plasma Imaging - O. G. Belogurov, V. A. Venediktov, V. R. Kazakov, V. V. Kushin, V. K. Lyapidevskii, and V. B. Perezhogin	401	155
Characteristics of Photodetector for Measurement of Energy Parameters of Infrared Radiation - N. V. Zhimskaya, E. A. Fedorova, E. E. Gusyatnikova, A. N. Perevozchikov, and V. I. Shtepa	405	158
Low-Frequency Oscillatory System Based on Magnetic Suspension of High-Temperature Superconductor - N. N. Krasnyuk and V. P. Mitrofanov	407	160
High-Temperature Apparatus for Measurement of Electrical Conductivity, Thermal emf, and emf of Electrochemical Cells of Crystals of Oxide Compounds - Kh. S. Bagdasarov, A. I. Munchaev, and M. V. Remizov	410	163
Scanning Magnetic-Force Microscope - A. P. Volodin, M. V. Marchevskii, and M. S. Khaikin	413	165
Compact 150-kV Electron Accelerator - G. M. Kassirov, F. G. Sekisov, and N. N. Shumilova	419	171
Measurement of X-Ray Spectrum of Micropinch Discharge by Multichannel Scintillation Spectrometer - V. V. Averkiev, A. N. Dolgov, V. K. Lyapidevskii, A. S. Savelov, and G. Kh. Salakhutdinov	421	173
Automated Apparatus for Growth of Superlattices Based on $Pb_{1-x}Sn_xSe$ Semiconductors by Molecular-Beam Epitaxy - K. V. Vyatkin, V. M. Legostaev, A. A. Mikheev, and S. Yu. Podtaev	425	176
LABORATORY TECHNIQUES		
System for Programmable Microprocessing by Submicron Ion Beam - A. N. Dubrovin, V. G. Dudnikov, D. V. Kovalevskii, and A. L. Shabalin	430	180
Four-Wire Resistivity Meter for Semiconductor Materials - A. I. Fedonin and L. V. Kamenev	434	184
Apparatus for Acoustic Probing of Electric Fields in Dielectric Materials - V. I. Verkhoturov, O. S. Grafodatskii, V. K. Zhukov, V. Yu. Ekimenko, A. V. Kargapol'tsev, V. N. Rudenko, and V. I. Simanchuk	438	186
Device for Measurement of Dielectric Properties of Materials at Low and Infralow Frequencies - V. I. Kiselev and R. M. Sultanaev	442	190
Simple Supersonic Wind Tunnel - D. F. Bykov, S. I. Gritsinin, and I. M. Raevskii	445	193
Laboratory Thermoelectric Current Source with Heat Removal by Liquid Nitrogen - V. P. Babin, E. K. Iordanishvili, A. A. Kodirov, M. B. Nabiev, and Kh. O. Olimov	447	195

	Engl.	Russ.
Economical Variable High-Voltage Supply - E. V. Ivanov	449	197
Induction Heating of Specimens in Electron Spectrometers - V. I. Kozhevnikov, F. Z. Gil'mutdinov, O. M. Kanunnikova, D. V. Merzlyakov, M. F. Sorokina, and A. V. Antonov	451	199
Device for Mechanical Cleaning of Specimens in Electron Spectrometers - V. I. Kozhevnikov, F. Z. Gil'mutdinov, O. M. Kanunnikova, and M. F. Sorokina	453	200
High-Temperature Cathode-Heater Units of Composite Material - A. N. Ermilov and L. V. Loginov	454	201
System for Measurement of Emission Characteristics of Field Emitter - B. Kh. Mosienkov, V. A. Seliverstov, G. A. Sharikov, and E. P. Sheshin	458	204
Electrostatic Stabilization of Metal Drop for Electron-Beam Evaporation in Diode Gun - I. E. Protsenko, V. G. Shamonya, A. V. Yaremenko, and L. A. Yaremenko	461	206
Palladium-Silver Hydrogen Separator with Quartz-Lamp Activator - N. S. Belov and D. I. Arsen'ev	463	207
Optimization of Microwave Hydrogen Dissociator - V. P. Ershov, I. V. Zhigulin, A. V. Levkovich, V. G. Luppov, M. Mertig, and Yu. K. Pilipenko	465	209
Vacuum-Plasma Metallization of Dielectrics - A. A. Derkach and V. A. Saenko	467	211
Measurement of Characteristics of Semiconductor Laser Emitters by Temperature-Jump Method - A. P. Erzikov and O. V. Kudryashov	470	213
Economical Two-Frequency Control Circuit for High-Speed Liquid-Crystal Electroopic Shutter - E. V. Ivanov	474	216
Liquid-Level Indicator with Bihelical-Conical Light-Guide Structure - M. S. Korenev	476	218
Hydrogen Vaporizer-Converter - A. A. Levchenko and L. P. Mezhov-Deglin	478	220
Multiconductor Lead for Operation in Liquid Helium - V. I. Bondarenko, L. B. Dinaburg, A. B. Konstantinov, V. I. Laur, and I. I. Samorodov	480	221

Volume 34, Number 3, Part 1, May-June, 1991

	Engl.	Russ.
Decomposition of Electromagnetic Waves into Orthogonally Polarized Components and Waveguide Polarization Splitters (Review) - A. V. Khokhlov and O. V. Epifanova	483	15
NUCLEAR TECHNIQUES		
Device for Placement of Instruments in Horizontal Channel of IRT Reactor - A. P. Kryukov, L. A. Ballod, N. O. Elyutin, D. S. Denisov, F. G. Kulidzhanov, S. K. Matveev, and A. O. Éidlin	497	27
Separate Detection of Hadrons and Electrons in Combined Calorimeter - Yu. M. Antipov, Yu. P. Gorin, Yu. A. Gornushkin, R. Leitner, G. V. Mitsel'makher, A. A. Nozdrin, A. G. Ol'shevskii, and A. I. Petrukhin	499	29
Energy and Space Resolutions of Steel-Scintillator Hadron Calorimeter with 15-cm Cell - O. P. Gavrishchuk, V. S. Datsko, R. V. Eremeev, M. G. Kadykov, I. G. Kosarev, V. V. Kukhtin, D. V. Peshekhonov, V. K. Semenov, and A. B. Shalygin	504	33
Effect of Cerenkov Radiation in Spectrum-Shifting Light Guide on Characteristics of Hadron Calorimeter - O. P. Gavrishchuk, V. S. Datsko, R. V. Eremeev, M. G. Kadykov, I. G. Kosarev, V. V. Kukhtin, and V. K. Semenov	509	36
Spectrometer for Light Ternary-Fission Products - I. A. Kukushkin, V. E. Makarenko, Yu. D. Molchanov, G. A. Otroshchenko, and G. B. Yan'kov	513	39
Apparatus for Precise Registration of Decay Curves of Positron Sources - V. S. Potapchuk and Yu. M. Tsipenyuk	516	42
Scanning Position-Sensitive Detector - K. M. Podurets, N. L. Mitrofanov, V. A. Somenkov, A. B. Tyugin, and S. Sh. Shil'shtein	520	45

	Engl.	Russ.
Selection of Charged-Particle Detector for Extensive Air Showers - V. V. Vashkevich, Yu. A. Nechin, B. A. Khrenov, G. B. Khristiansen, V. V. Pomerantsev, and V. G. Senchishin	523	48
Silicon Strip Detectors - I. P. Barkov, I. M. Gazizov, L. L. Kurchaninov, V. V. Rykalin, A. I. Saraikin, and V. A. Stankevich	529	52
Silicon Planar Ion Detectors with High Energy Resolution - E. M. Verbitskaya, V. K. Eremin, A. M. Malyarenko, N. B. Strokan, V. L. Sukhanov, I. Borani, and B. Schmidt	534	56
Determination of Angular Directivity of Cosmic Waves by a Single Scintillation Counter - A. N. Alent'ev	540	61
Shock-Absorbing Elements for Scintillation Detectors - L. A. Andryushchenko, B. V. Grinev, and V. L. Yankelevich	543	63
COMPUTER APPLICATIONS		
System for Digital Image Recording and Reproduction - S. G. Basiladze, A. G. Nikolaev, V. V. Petrovskii, V. M. Rybnikov, and Yu. D. Shchukin	546	67
Method for Estimation of Track Diameters in System for Automatic Processing of Radiographic Images - V. D. Rusov and V. I. Sviridov	550	71
Multipulse Generator for Calibration of Time-to-Number Converters - V. G. Zinov and A. V. Selikov	552	73
Eight-Channel Fiber-Optic Transceiver for Telemetry and Control Signals - A. B. Semenov, E. S. Belyakov, and V. M. Vatutin	556	76
ELECTRONICS AND RADIO ENGINEERING		
Compensated Shunt for Oscillographic Recording of Single Current Pulses - V. F. Sen'ko and B. A. Kuznetsov	559	80
Programmable Function Generator - N. I. Borodin and I. P. Bukanov	562	82
Multichannel Nonminimum-Phase Band-Elimination Filter with Linear Phase Response - V. I. Nevolin and A. V. Ovchinnikov	564	84
Time-Interval Measurement Using High-Speed Counters of Series 193 - K. N. Stroev and N. N. Stroev	566	86
Increasing the Accuracy of Trigatron-Discharger Actuation in Control Circuits for Optical Switches - Yu. S. Denishchik	568	88
Nanosecond Square-Pulse Generator - L. P. Ivanov, V. V. Kochetkov, G. A. Nepokoichitskii, T. B. Rozanova, and K. Ya. Senatorov	571	91
High-Voltage Pulse Generator with Subnanosecond Rise Time - N. I. Boiko and I. A. Safronov	573	93
Nonlinear Resistors for Protection of High-Power Pulse Generators - Yu. A. Kotov, S. Yu. Sokovnin, and V. A. Gizhevskii	576	96
Capacitive-Storage-Device Complex of Iskra-5 Apparatus - V. G. Bezuglov, I. V. Galakhov, A. S. Gasheev, S. N. Gudov, V. I. Zolotovskii, A. Yu. Il'in, G. A. Kirillov, Yu. P. Kuz'michev, A. I. Kucherov, S. L. Logutenko, V. M. Murugov, V. A. Osin, I. N. Pegoev, and V. N. Petrakov	581	100
2.5-MJ 5(10)-kV Capacitive Storage Device - A. M. Baltakhanov, E. N. Ivanov, V. I. Zherlygin, A. V. Lovenetskii, Yu. V. Markitanov, A. V. Alekseev, V. S. Eremenko, A. I. Kapustin, and M. I. Ral'chenko	584	103
Quasioptical Open-Resonator Gunn-Diode and Avalanche-Transit-Time-Diode Oscillators - A. V. Arkhipov, O. I. Belous, B. M. Bulgakov, A. O. Fisun, and A. M. Fursov	588	106
Voltage Regulator with Short-Circuit Protection - S. A. Kanygin	592	109
Current Sensor Based on Helical-Line Sections - A. I. Pavlovskii, V. S. Bosamykin, V. P. Gritsyna, and V. A. Savchenko	594	111

	Engl.	Russ.
GENERAL TECHNIQUES		
Apparatus for Surface Element Analysis by Laser Ionization of Secondary Atoms - I. V. Zakurdaev, D. E. Milovzorov, G. A. Sheroziya, and V. A. Shishlakov	599	115
Low-Background Ion Detector-Counter for Mass Spectrometer - D. D. Bogdanov, A. M. Rodin, S. I. Sidorchuk, and V. A. Timakov	602	117
Pulsed Ion Gun for Laser Atomic-Ionization Spectrometer - M. V. Kuz'mina, D. E. Milovzorov, Yu. V. Orlov, D. V. Strel'nikov, and V. A. Shishlakov	605	120
Pulse Device for Extraction of Quasicontinuous Electron Beam into Dense Gas - V. S. Zhivopistsev, A. O. Ikonnikov, S. A. Il'chenko, A. T. Kunavin, D. V. Sapozhnikov, and V. E. Yakovlev	607	122
Electron-Beam Sources with Energies to 1 keV - A. A. Borovik	610	124

Volume 34, Number 3, Part 2, May-June, 1991

GENERAL TECHNIQUES		
Self-Contained Electron Injector for Plasma Research - S. B. Goryachev, R. M. Lapik, I. N. Meshkov, V. N. Mozgunov, and E. M. Syresin	615	128
Periodically Pulsed Source of High-Power Electron and Ion Beams - N. V. Gavrilov, Yu. E. Kreindel', and O. A. Shubin	618	130
High-Current Photomultipliers with High Time Resolution for Near Infrared Region - A. G. Berkovskii, V. G. Gusel'nikov, N. E. Semenova, T. V. Smirnova, and A. N. Sushchenko	622	134
New Photocathodes for Radiation with a Wavelength of ≈100 Å - A. L. Andrushchenko, A. M. Pavlov, V. N. Shchemelev, V. A. Podvyaznikov, A. M. Prokhorov, and V. K. Chevokin	625	137
Experimental Apparatus for Study of Domain-Boundary Dynamics by Inelastic Light Scattering - S. O. Demokritov, A. I. Kirilyuk, N. M. Kreines, and V. I. Kudinov	628	139
Two-Coordinate Electrooptic Deflector with Cooled DKDP Crystals - A. B. Van'kov, V. M. Volynkin, and A. A. Chertkov	633	143
Tunable CO_2 Waveguide Laser - Yu. G. Agalakov, M. I. Zinchenko, and Yu. A. Rubinov	635	146
CO Waveguide Laser with Thermoelectric Cooling - A. G. Gerasimchuk, S. T. Kornilov, E. D. Protsenko, and S. I. Tymper	638	148
Compact XeCl Electric-Discharge Laser with Narrow Spectrum and Low Beam Divergence - Yu. N. Panchenko, V. F. Losev, and S. E. Kovalenko	640	150
Generation of Radio-Frequency Pulse Trains by Neodymium-Glass Laser - A. V. Alekseev, L. I. Andreeva, I. V. Korableva, and V. A. Rusov	643	152
Synchronized Picosecond Laser and Subnanosecond Electron Beams for Excitation of Transparent Dielectrics - B. P. Aduev, D. I. Vaisburd, A. A. Kondrashov, and P. A. Pal'yanov	646	155
Data-Acquisition System for Study of Electromechanically Active Materials and Transducers - S. M. Kaplun, E. A. Ruben, and A. M. Shtern	649	158
Sound-Velocity Meter of Increased Accuracy - A. M. Izmailov, E. V. Mitrofanova, and N. A. Nasibov	655	164
Device for Visual Observation of Ellipticity and Rotation of Ultrasound Polarization Plane - A. M. Burkhanov, V. V. Gudkov, and I. V. Zhevstovskikh	658	167
Infrasonic Dielectric Spectrometer - A. A. Belov and V. V. Bonch-Bruevich	662	170
Device for Determination of Dielectric Parameters of Materials at Low and High Frequencies - V. I. Kiselev and R. M. Sultanaev	665	172
Gas Proportional Counter for Measurement of Yield of Photoelectrons Excited by Standing X-Ray Wave under Conditions of Multiwave Diffraction - M. V. Koval'chuk, A. M. Nikolaenko, A. S. Semiletov, I. Yu. Kharitonov, and Yu. N. Shilin	669	176
Space Simulator for Materials Studies - M. M. Mikhailov and Yu. A. Rylkin	673	180

	Engl.	Russ.
Use of High-Resolution Double-Crystal Spectrometer to Measure Valent State of Titanium Ions in TiO_{2-x} and $SrTiO_{3-x}$ Single Crystals - Yu. V. Zaitseva, V. S. Konevskii, E. V. Krivonosov, L. A. Litvinov, M. F. Ozerov, and L. P. Podus	675	182
Study of Energy Sensitivity of Thermoluminescence Detectors in X-Ray Regions - V. F. Zinchenko, Yu. B. Zverev, V. M. Likholat, and V. V. Timofeev	678	185
Kristall-2 Goniometer with Automatic Control System - V. N. Berezka, V. B. Ganenko, N. G. Golovko, V. G. Gorbenko, V. A. Gushchin, Yu. V. Zhebrovskii, L. Ya. Kolesnikov, V. D. Ovchinnik, A. L. Rubashkin, and P. V. Sorokin	681	188
Contactless Measurement of Volt-Ampere Characteristics by Charge Injection in Dielectrics - V. P. Novozhilov and A. P. Naimushin	686	192
PHYSICS INSTRUMENTS FOR ECOLOGY, MEDICINE, AND BIOLOGY		
Resonance-Fluorescence Hygrometer for Humidity Measurement in the Stratosphere - M. V. Kretova, M. G. Khaplanov, and V. A. Yushkov	689	195
Detector for Positron-Emission Tomograph - V. G. Vasil'chenko, A. V. Konoplyannikov, S. L. Kosmatov, E. A. Krivandina, M. M. Litvinov, V. I. Rykalin, O. B. Ryazantsev, B. P. Sobolev, and M. M. Soldatov	693	198
LABORATORY TECHNIQUES		
Stage for Remote Micropositioning of Specimens - M. L. Adamovich, A. A. Kosyachkov, and V. T. Cherepin	697	202
System for Holding Specimen in Reflecting Position for URT-1 X-Ray Topography Apparatus - N. I. Sterzhanov, V. N. Nekrasov, I. I. Dod', and E. B. Maslov	699	204
Device for Thickness Finishing of Piezoelectric Plates - F. D. Mamatdzhanov and Kh. Z. Tashpulatov	701	206
Electrical Lead for Potentiometric Measurements in Fluids at Temperatures to 300°C and Pressures to 100 MPa - E. G. Osadchii and F. P. Arzhatskii	703	207
Device for Study of Electron Paramagnetic Resonance at Elevated Gas-Medium Pressure - A. A. Dadali, L. S. Lyubchenko, and A. A. Veretil'nyi	706	209
Suppressor of Contact-Bounce Pulses - E. N. Bantyukov and V. G. Ershov	708	211
Compact Controlled Power Supply for Pulsed Solid-State Laser - A. I. Ivanisik and V. I. Malyi	709	212
Electron Gun for Surface Studies - N. E. Menabde, Yu. I. Nardaya, S. A. Zaslavskii, and L. M. Tsakadze	712	215
Device for Vacuum Cleavage of Semiconductor Crystals with Subsequent Adjustment of the Cleavage Surface - Yu. I. Asalkhanov, I. I. Dombrovskii, and A. V. Zhelaev	714	216
Preparation of Reflective Foil for Ultracold-Neutron Channels - N. V. Borovikova, A. B. Brandin, A. I. Egorov, and V. M. Lobashev	716	218
Radio-Frequency Magnetron Sputterer for Thin-Film Growth - A. F. Belyanin, P. V. Pashchenko, and A. P. Semenov	718	220
AlGaAs-Film-Based Pressure-Pulse Sensor - I. M. Sigeikin, S. G. Zhilenis, V. S. Sotnikov, and A. A. Gritsyus	720	222
Method for Measurement of Scintillator Transparency - A. I. Peresypkin, R. V. Ponomarev, and V. I. Rykalin	723	225
Analog Recorder of Optical Reflection and Transmission at Laser Wavelengths - P. T. Tereshchenko, O. A. Parkhomenko, and V. V. Onopko	725	226
Birefringence Method for Recording of Wetting-Angle Distribution - A. N. Magunov	727	228
Method for Study of Melting and Crystallization Processes in Cold Container with Direct Radio-Frequency Heating - V. I. Aleksandrov, V. P. Voinitskii, E. E. Lomonova, V. V. Osiko, and N. P. Khaneev	731	231
System for Formation and Injection of Solid-Hydrogen Pellets - V. I. Karpukhin, M. N. Novikov, and M. O. Shvets	734	235

Engl./Russ.

Volume 34, Number 4, Part 1, July-August, 1991

Electron-Cyclotron-Resonance Ion Sources (Review) - K. S. Golovanivskii and V. D. Dougar-Jabon 739 8
Devices for Production of Langmuir-Blodgett Films (Review) - O. V. Chechel' and E. N. Nikolaev 750 19

NUCLEAR TECHNIQUES
Calibration of Beam Position Monitor Using Two-Wire Transmission Line Simulator - L. K. Alekseev, V. F. Vikulov, I. V. Pishchulin, and N. G. Solov'ev 763 30
Screens for Diagnosis of 70-GeV Proton Beams - S. D. Borovkov, S. A. Grishenkov, V. S. Konevskii, E. V. Krivonosov, L. A. Litvinov, V. P. Novikov, E. V. Serga, and A. V. Kharlamov 767 33
Measurement of Proton-Beam Parameters by Means of Digital Television Diagnostic System - V. A. Vazhenin, S. D. Borovkov, A. V. Evtikhiev, V. A. Zenin, V. P. Novikov, A. A. Ornatov, Yu. A. Romanov, A. M. Ryzhkov, E. V. Serga, A. V. Kharlamov, G. V. Khitev, and A. A. Yagnakov 771 36
Multiple Measurement of Proton-Beam Profile with Slow Extraction from 70-GeV Synchrotron - Yu. P. Davydenko, V. M. Roman'kov, V. S. Seleznev, and V. I. Terekhov 775 40
Simulation of Hadron Calorimeter of Tagged-Neutrino Facility by Means of Gheisha Program - M. G. Kadykov, V. V. Kukhtin, D. V. Peshekhonov, and G. I. Smirnov 779 43
Acoustic-Emission Method for Determination of Energy of Heavy Charged Particles - M. D. Bavizhev, V. L. Burlikov, S. A. Vorob'ev, A. V. Kargapol'tsev, and V. I. Simanchuk 784 47
Proportional-Tube System - E. N. Gushchin, L. L. Kurchaninov, Yu. V. Musienko, V. V. Sushkov, and R. S. Shuvalov 785 48
Study of Characteristics of Gamma-Irradiated Materials for Calorimeters - G. I. Britvich, V. G. Vasil'chenko, E. A. Krivandina, A. I. Peresypkin, and B. P. Sobolev 789 51
System for Mössbauer-Source Movement Using Bipolar Digital-to-Analog Converter - V. I. Sinyavskii and V. V. Leksin 795 55
Characteristics of Silicon Planar Detectors in High-Energy Particle Beams - I. P. Barkov, I. M. Gazizov, V. A. Kachanov, L. L. Kurchaninov, N. E. Mikhalin, V. V. Rykalin, A. I. Saraikin, V. L. Solov'yanov, V. A. Stankevich, and V. Yu. Khodyrev 797 57
Comparative Characteristics of Polystyrene Scintillation Strips - V. A. Gapienko, I. G. Golutvina, A. G. Denisov, L. Ya. Zhil'tsova, A. I. Malakhov, E. N. Matveeva, E. A. Mel'nikov, T. D. Pilipenko, O. G. Rubina, and A. Yu. Semenov 801 60
Optimization of Scintillator Thickness for Weak Pulsed Photon Fluxes - V. F. Kositsyn, T. K. Ragimov, and A. V. Shumakov 803 62
Use of Scintillator-Photodiode Detector in Counting Mode in Dosimetry - E. A. Danshin, L. A. Piven', V. D. Ryzhikov, and E. M. Selegenev 807 65

COMPUTER APPLICATIONS
Data-Acquisition Device for Multielectrode Emission and Ionization Chambers Used to Determine Profile of Phasotron Particle Beam - V. A. Antyukhov, N. I. Zhuravlev, A. V. Zernov, V. G. Zinov, and M. Mlynarchik 811 69
Circuit for Event Sampling in Muon-Catalysis Experiments - A. I. Gilev, S. A. Ivanovskii, V. G. Zinov, A. I. Rudenko, and A. V. Selikov 815 73
Data Recorder - V. P. Vlasov and A. V. Ermolenko 820 78
Recorder of Pulse Arrival Times - V. G. Shcherbitskii 823 81

	Engl./Russ.	
Adaptive Controller for CCD-Based Video-Signal Generator - V. M. Klochko, V. V. Korobkin, A. A. Redchuk, and I. V. Shpak	827	84
PCA/Incremental-Memory Interface for Analog Processors On-Line with an IBM PC-XT/AT - Sh. Biri, V. S. Buttsev, I. Molnar, and V. N. Samoilov	830	88
256K/1M Dual-Port Memory with Speed to 10M bytes/sec - S. V. Golovkin, V. V. Golubev, E. N. Kozarenko, and A. B. Sheinin	834	91
Common-Bus Interface Units - V. L. Tsymbalenko	837	94
Use of Microcomputer and CAMAC System for Automatization of Acoustic Measurements - B. B. Voronov, I. N. Kokshaiskii, and A. I. Korobov	839	96
Use of A Priori Probability to Detect Short-Lived Random Events - V. F. Kositsyn and A. V. Shumakov	842	99
ELECTRONICS AND RADIO ENGINEERING		
Combined Analog-to-Digital Converter - S. U. Klimovich and L. A. Borisyuk	847	103
Amplitude- and Phase-Measurement Unit for Two-Channel Synchronous Amplifier - V. G. Eremenko, V. A. Sokirkin, and P. N. Chuprov	849	105
Digital Low-Frequency Signal Generator - O. G. Volodin and N. S. Perov	852	108
New Crowbar Circuit - A. G. Es'kov and M. I. Kitaev	856	112
High-Voltage Pulse Generator - E. V. Krylov	859	114
Barker-Code Generator - A. R. Korsunov and A. M. Tishenko	861	116
Multichannel Malfunction Detector for Simultaneously Actuated Switches - V. I. Modzolevskii	864	118
Cryogenic Hypersonic Delay Line for Millimeter-Band Signals - E. M. Ganapol'skii	867	121
Regulated High-Voltage Supply for Study of Field Emission - S. N. Ivanov, S. N. Shilimanov, and V. G. Shpak	871	124
Volume 34, Number 4, Part 2, July-August, 1991		
GENERAL TECHNIQUES		
Mass-Spectrometric Apparatus for Study of Excited Neutral and Ion Components of Low-Temperature Plasma - R. T. Malkhasyan and G. L. Movsesyan	873	127
Ion Source and High-Temperature Molecular-Beam Source for MI-1201V Mass Spectrometer - V. M. Grankin and P. P. Semyannikov	875	129
Ion Transport through Needle Valve for Mass Spectrometry of Vacuum-Arc Plasma - Zh. A. Mrochek, I. A. Romanchuk, and M. M. Semenkevich	880	133
System with Submicron Ion Probe for Microstructuring and Analysis of Materials - V. T. Cherepin, V. L. Ol'khovskii, V. É. Is'yanov, I. A. Zotov, and S. P. Chenakin	883	135
Two-Stage Aerodynamic Window - V. A. Aksenov, I. V. Zakharov, V. M. Nikitin, S. G. Smetanin, V. M. Khailov, and V. V. Shelomovskii	887	138
Multiframe Photography with Biplanar Image Converter - V. V. Ludikov, A. M. Prokhorov, and V. K. Chevokin	890	141
Electron Spectrometer with Monochromator and Increased Specimen-Scanning Area - Yu. K. Golikov, S. N. Davydov, and V. V. Korablev	893	143
Study of Supermolecular Structure by Optical Fourier Transforms of Scattered-Light Patterns - V. A. Gudkov	900	148
Use of Diffraction Couplers to Determine Laser-Radiation Parameters - S. V. Alekseev	905	153
Laser Interferometer Sound-Pressure Meter - E. S. Avdoshin	909	156
Pump-Pulse Generator for High-Power Excimer Discharge Laser - V. A. Vizir', Yu. B. Kiryukhin, V. I. Manylov, S. P. Nosenko, S. P. Sychev, V. V. Chervyakov, and N. G. Shubkin	913	160

	Engl.	Russ.
Design of Thin Windings to Create Magnetic Fields of a Given Shape - V. R. Portugal'skii	915	162
Automated Setup for Study of Reaction Kinetics of Self-Propagating High-Temperature Synthesis - V. A. Knyazik, A. E. Denisenko, E. A. Chernomorskaya, and A. S. Shteinberg	918	164
Measurement of Adiabatic Thermal Pressure Coefficient in Periodic Mode - L. A. Blagonravov and Modkhen Feissal	922	167
Waveguide Cell for Millimeter-Band Spectrometer with Stark Modulation and Double-Resonance Modulation - Ch. O. Kadzhar, S. A. Musaev, and É. Ch. Saidov	925	171
Compton Gamma Flaw Detection - V. E. Rad'ko	929	174
Photometer for Quantitative Structure Analysis of Surfaces - M. A. Vasil'ev, S. D. Gorodetskii, and A. M. Moseichuk	949	193
Study of Light-Element Distributions in Surface Layers of Solids - G. M. Gusinskii, I. V. Kudryavtsev, V. O. Naidenov, and L. A. Rassadin	952	196
Soft-X-Ray Calorimeter - V. S. Pak and S. A. Chistyakov	958	201
Contactless Phase Method for Determination of Excess-Carrier Lifetime in Semiconductors - A. G. Areshkin, A. S. Ivanov, D. G. Letenko, and A. B. Fedortsov	959	202
LABORATORY TECHNIQUES		
Cell for Study of Conductance of Liquids in a Shear Field - N. V. Usol'tseva, V. V. Bykova, V. A. Sandler, and P. A. Burylin	962	204
Accumulation of NMR Signals in BS-487 High-Resolution Spectrometer - G. N. Zagitov, M. Kh. Zeleev, I. A. Valiakhmetov, and R. S. Nasibullin	965	206
Oxygen-Flow Regulator Based on Solid Dielectric - V. I. Radchenko and V. N. Kudryavtsev	968	208
Magnetron System for Coating Deposition on Tubular Specimens - S. V. Antonenko and G. A. Komandin	970	210
Creation of Silicon-Nitride Films on Silicon during Implantation - P. A. Aleksandrov, E. K. Baranova, V. V. Budaragin, K. D. Demakov, E. V. Kotov, and S. G. Shemardov	972	211
Cells for Study of Electrochemical Properties and Surface Modification of Polymer Insulators - A. A. Pud, G. S. Shapoval, and O. É. Mikulina	974	213
Heater Attachment for Transmission Electron Microscope - B. L. Gazerov, V. I. Mikhailov, and E. V. Pustovalov	977	215
High-Temperature Cell with Controlled Atmosphere for In Situ Studies by Combination Scattering - S. G. Poryvaev	979	217
Cell for Study of Transmission Spectra of Thin-Film Liquid Specimens - L. B. Boinovich	982	220
Interference Method for Determination of Masses of Gaseous Optical Heterogeneities - L. S. Abrukova and V. S. Abrukov	984	221
Fast Measurement of Angular Dependence of Coefficient of Laser-Beam Reflection by a Fixed Specimen - A. S. Ivanov, D. G. Letenko, I. A. Torchinskii, A. B. Fedortsov, and Yu. V. Churkin	986	222
Instrument for Gravimetric Monitoring of Sorption - A. G. Kalandarishvili and V. G. Kashiya	988	224
Thermal Switch with Superfluid ^{4}He - É. Ya. Rudavskii, V. K. Chagovets, and G. A. Sheshin	990	226
COMMENTARY		
Comments on A. I. Gerasimov's Article "Rogowski Loop with Multilayer Coil and Nanosecond Rise Time" (Prib. Tekh. Éksp., No. 3, 110 (1989)). - G. M. Oleinik	992	228
Response to Comments of G. M. Oleinik - A. I. Gerasimov	993	228

Volume 34, Number 5, Part 1, September-October, 1991

Parallel Methods of Preliminary Data Processing in Multichannel Charged-Particle Detectors (Review) - N. M. Nikityuk 995 20

NUCLEAR TECHNIQUES

MEVVA Source of Multiply Charged Heavy Ions - M. M. Kats, L. N. Kondrat'ev, N. N. Pomelov, and A. D. Rogal' 1014 37

System for Pulse Modulation of Particle-Beam Intensity for Fast-Circulation Bubble Chamber - B. A. Vakhromeev, V. I. Kotov, V. N. Lyamin, Vl. N. Lyamin, V. P. Panov, N. A. Pokidov, B. V. Prosin, O. V. Romanov, A. A. Romashchin, Yu. A. Samorodov, and V. A. Ushakov 1019 41

NTG-2 Compact Sealed Accelerating Tube for Neutron Generation - V. M. Gul'ko, N. F. Kolomiets, B. V. Mikhailenko, A. E. Shikanov, and K. I. Yakovlev 1024 45

Nanosecond Neutron Generator - S. I. Lobov, N. G. Pavlovskaya, and S. P. Pukhov 1027 48

Focus Apparatus for Study of Profoundly Inelastic Nuclear Reactions - Yu. D. Bayukov, B. M. Bobchenko, V. B. Gavrilov, N. A. Goryainov, Yu. G. Grishchuk, O. B. Gushchin, E. A. Doroshkevich, L. S. Vorob'ev, Yu. V. Efremenko, A. S. Zhokin, V. V. Zhurkin, M. V. Kosov, S. G. Kuznetsov, S. V. Kuleshov, L. N. Kuleshova, G. A. Leksin, N. A. Pivnyuk, A. V. Smirnitskii, V. L. Stolin, D. A. Suchkov, V. B. Fedorov, F. M. Khasanov, B. B. Shvartsman, and S. M. Shuvalov 1030 50

Use of GAMS-2000 Hodoscope Spectrometer to Trigger an Apparatus for Study of Neutral-Meson Production - D. Alde, F. Binon, M. Gouanere, S. V. Donskov, A. V. Inyakin, V. A. Kachanov, T. Lopez, Yu. V. Mikhailov, E. A. Knapp, J. P. Peigneux, Yu. D. Prokoshkin, V. D. Samoilenko, A. V. Sin'govskii, J. P. Stroot, V. P. Sugonyaev, and P. M. Shagin 1036 55

Low-Background Liquid-Scintillation Alpha-Beta Spectrometer - L. A. Levina, S. V. Oleinik, A. A. Fedotov, R. F. Ulumbekov, and A. N. Kheruvimov 1041 59

Dependence of Cerenkov-Radiation Intensity on Energy of Hadron Showers Caused by Positive Pions in an Electromagnetic Calorimeter - G. V. Velev, V. V. Glagolev, S. N. Malyukov, I. A. Minashvili, N. A. Rusakovich, N. L. Rusakovich, and G. A. Chlachidze 1048 65

COMPUTER APPLICATIONS

Automatic Control System for High-Voltage Accelerator - A. N. Bryukhanov, P. Yu. Komissarov, V. V. Lapin, S. T. Latushkin, D. E. Fomenko, and L. I. Yudin 1052 69

Modular Automatic Apparatus for Study of Semiconductor Materials and Structures by Electrical and Photoelectric Measurements - L. Nikolov, K. Germanova, B. Angelov, and M. Tonchev 1059 77

Multichannel Laser-Pulse-Energy Measuring System Based on an Élektronika BK-0010-01 Personal Computer - D. I. Maleev, G. M. Mikheev, and T. N. Mogileva 1063 80

Digital Synchronous Accumulator - Yu. M. Kobzar', V. G. Kovtun, and N. I. Pashechko 1067 84

Programs for Signal Recovery from Noisy Data by Maximum-Likelihood Method - V. I. Gel'fgat, E. L. Kosarev, and E. R. Rodolyak 1070 86

Spectrum Smoothing Using Data on Frequency Composition of Noise - A. V. Yakovenko 1076 91

ELECTRONICS AND RADIO ENGINEERING

Lambda Devices with Synthesizable Volt-Ampere Characteristics - A. P. Alekseev and A. E. Saimanin 1081 95

High-Performance Self-Correcting Analog-to-Digital Converter - R. I. Grushvitskii, A. N. Dedov, A. Kh. Mursaev, and O. V. Shishov 1086 98

Pulse-Amplitude Discriminator - J. Baczynski 1089 101

	Engl.	Russ.
Variable Frequency Divider - E. N. Bantyukov	1093	104

Volume 34, Number 5, Part 2, September-October, 1991

ELECTRONICS AND RADIO ENGINEERING

Kilovolt Pulse Shaper for Capacitive Load - A. Kruusing	1095	106
Square-Pulse Shaping by Reverse-Connected Semiconductor Diodes - S. I. Zienko, V. V. Brytkov, and I. R. Shpakov	1098	108
Generator of Quasisquare Voltage Pulses with Alternately Actuated Dischargers - S. N. Rukin and B. G. Slovikovskii	1101	111
3-cm-Band Loop-Gap Resonator for Spin-Echo Spectrometer and Laser EPR Spectrometer - I. A. Gromov, S. B. Orlinskii, and R. M. Rakhmatullin	1104	113
Wideband Resonator for Microwave Spectroscopes - S. A. Katrich and V. A. Popov	1107	116
Carrier-Frequency Meter for Single Microwave Pulses - B. I. Mysenko, O. F. Meshkov, V. I. Nayanov, and A. S. Tatarenko	1110	119
Microwave Active Filters Using Locked Semiconductor Oscillators - S. S. Gorbatov, D. A. Usanov, A. A. Semenov, V. D. Tupikin, A. V. Maiborodin, and V. G. Vinenko	1113	121
Schottky-Barrier-Diode Wideband Submillimeter-Band Modulator - V. V. Kubarev and V. A. Shemetov	1115	122
Radio Imaging by Diversity Phase-Meter System - V. P. Bezguzikov, N. N. Bondarev, and A. P. Chikhonadskikh	1118	124
Radio-Frequency Unit of Wideband Multichannel Receiver for Radio-Physics Studies - L. I. Babak, S. V. Melikhov, M. Yu. Pokrovskii, V. P. Pushkarev, and A. A. Titov	1121	127
Control Circuit for Microwave Pin-Diode Devices - S. B. Venig, B. N. Korotin, A. A. Semenov, and D. A. Usanov	1125	131

GENERAL TECHNIQUES

Electron-Beam Injector - G. G. Kanaev and É. G. Furman	1127	133
Dielectric Emitter in Injector of Linear Induction Electron Accelerator - O. N. Tomskikh and É. G. Furman	1130	136
Corpuscular Method for Measurement of Electric Field in Unmagnetized Plasma - M. V. Kozintseva, A. S. Lipatov, and V. K. Kharchevnikov	1133	138
Coherent Anti-Stokes Raman Scattering Spectrometer for Pulsed Local Measurement of Gas Temperature - V. V. Moiseenko, S. A. Novopashin, and A. B. Pakhtusov	1136	141
Coordinate-Sensitive Microchannel Plate Photomultiplier - V. P. Volkov, B. M. Glukhovskoi, N. M. Selivanchik, and I. F. Yaroshenko	1140	144
Two-Component Laser Doppler Anemometers - M. M. Ismailov, G. V. Mun, K. R. Samigulin, and E. G. Nikolaeva	1145	148
Apparatus for Optical Studies of Heterophase States in Crystals - A. T. Anistratov, S. B. Kruglyashov, L. A. Kovaleva, and A. B. Zybin	1148	150
Apparatus for Measurement of Radiation Losses and Backscattering in an Optical Resonator - A. L. Bondarev, V. A. Zborovskii, I. N. Ivanova, V. P. Zhuk, D. V. Kazberuk, B. A. Taushan, and T. G. Ugryumova	1151	153
Two-Frequency He-Ne Zeeman Laser - A. V. Mironov, V. E. Privalov, and S. A. Sinitsa	1154	156
"Garnet-WFI" High-Energy Two-Channel Laser - S. P. Andreev, S. A. Batishche, A. A. Kuz'muk, N. A. Malevich, V. A. Mostovnikov, and A. B. Ryabtsev	1157	158
Electrooptic Modulator for High-Power High-Frequency Periodically Pulsed and Quasicontinuous Lasers - M. V. Bondarenko, A. I. Konoiko, P. N. Nazarenko, V. I. Polyakov, and A. A. Stavrov	1161	162

	Engl.	Russ.
High-Power Continuous CO_2 Laser with Cryogenic Cooling - B. I. Vasil'ev, O. A. Evin, I. D. Tasmagulov, and P. V. Shatokhin	1164	164
Portable Quantum Magnetometer with Wide Operating-Temperature Range - Yu. V. Obukhov, B. I. Savel'ev, and V. V. Khanin	1166	166
Contactless dc Ammeters - V. V. Serkov	1170	169
Backscattered-Electron Detector for Auger Microscope Probes - A. L. Sterkhov and Yu. V. Rats	1173	172
LABORATORY TECHNIQUES		
Tensometric Pressure Gauge - G. I. Kiknadze, A. A. Mogil'nitskii, A. G. Pleshch, and A. L. Shenkevich	1177	175
Simple 1000-atm Gas-Pressure Booster - L. B. Kriksunov	1179	176
Digital System for Stabilization of Radio-Frequency Capacitance of MIS Structures - A. G. Zhdan, A. M. Klochkova, and A. M. Sumaroka	1180	177
Simple Stable Current Source - V. A. Makarov and R. A. Sivkov	1182	180
Linear Array of Pyroelectric Radiation Detectors - V. N. Kramarenko, S. K. Sklyarenko, A. A. Strokach, and A. G. Chepilko	1184	181
Position-Sensitive Photodetector - A. V. Sinyavskii	1186	183
Plasma-Dynamic Radiation Source - A. M. Semenov	1188	184
Device for Low-Temperature Vacuum Thin-Film Condensation - K. K. Murav'eva, V. P. Rubets, Ya. S. Smirnov, and I. P. Kalinkin	1192	188
System for Stabilization of Film-Deposition Rate in Thermal Evaporation - A. Yu. Klokov and T. I. Galkina	1194	189
Planar Magnetron for VUP-5 Universal Vacuum Station - A. P. Semenov and B.-Sh. Ch. Batuev	1197	192
Use of Sodium Hydroxide as Flux for High-Temperature Soldering of Chromium-Containing Steels and Alloys - E. A. Kolenko	1201	195
Fluxless Low-Temperature Soldering of Aluminum - E. A. Kolenko	1202	196
High-Speed Magnetic Rotor with Superconducting Bearings - V. V. Nemoshkalenko, A. A. Kordyuk, B. G. Nikitin, and V. A. Rafalovskii	1203	196